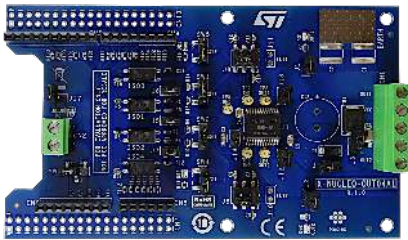


## Industrial digital output expansion board based on IPS2050H-32 for STM32 Nucleo



### Features

- Based on [IPS2050H-32](#) dual high-side switch, which features:
  - Operating range up to 60 V/5.7 A
  - Low power dissipation ( $R_{ON(MAX)} = 50\text{ m}\Omega$ )
  - Fast decay for inductive loads
  - Smart driving of capacitive load
  - Under-voltage lock-out
  - Per-channel overload and over-temperature protection
  - PSSO24 package
- Application board operating range: 8 to 33 V/0 to 5.7 A
- Extended voltage operating range (J3 open) up to 60 V
- Green LEDs for output on/off status
- Red LEDs for per-channel diagnostic (overload and overheating)
- 5 kV galvanic isolation
- Supply rail reverse polarity protection
- EMC compliance with IEC61000-4-2, IEC61000-4-3, IEC61000-4-5
- Compatible with [STM32 Nucleo](#) development boards
- Equipped with Arduino UNO R3 connectors
- CE certified
- RoHS and China RoHS compliant

Product summary	
Industrial digital output expansion board based on IPS2050H-32 for STM32 Nucleo	<a href="#">X-NUCLEO-OUT04A1</a>
Dual high-side smart power solid state relay	<a href="#">IPS2050H-32</a>
Applications	<a href="#">Programmable Logic Controllers</a>

### Description

The [X-NUCLEO-OUT04A1](#) industrial digital output expansion board for [STM32 Nucleo](#) provides a powerful and flexible environment for the evaluation of the driving and diagnostic capabilities of the [IPS2050H-32](#) (dual high-side smart power solid state relay) in a digital output module connected to 5.7 A (max.) industrial loads.

The [X-NUCLEO-OUT04A1](#) interfaces with the microcontroller on the [STM32 Nucleo](#) via 5 kV optocouplers driven by GPIO pins, Arduino UNO R3 (default configuration) and ST morpho (optional, not mounted) connectors.

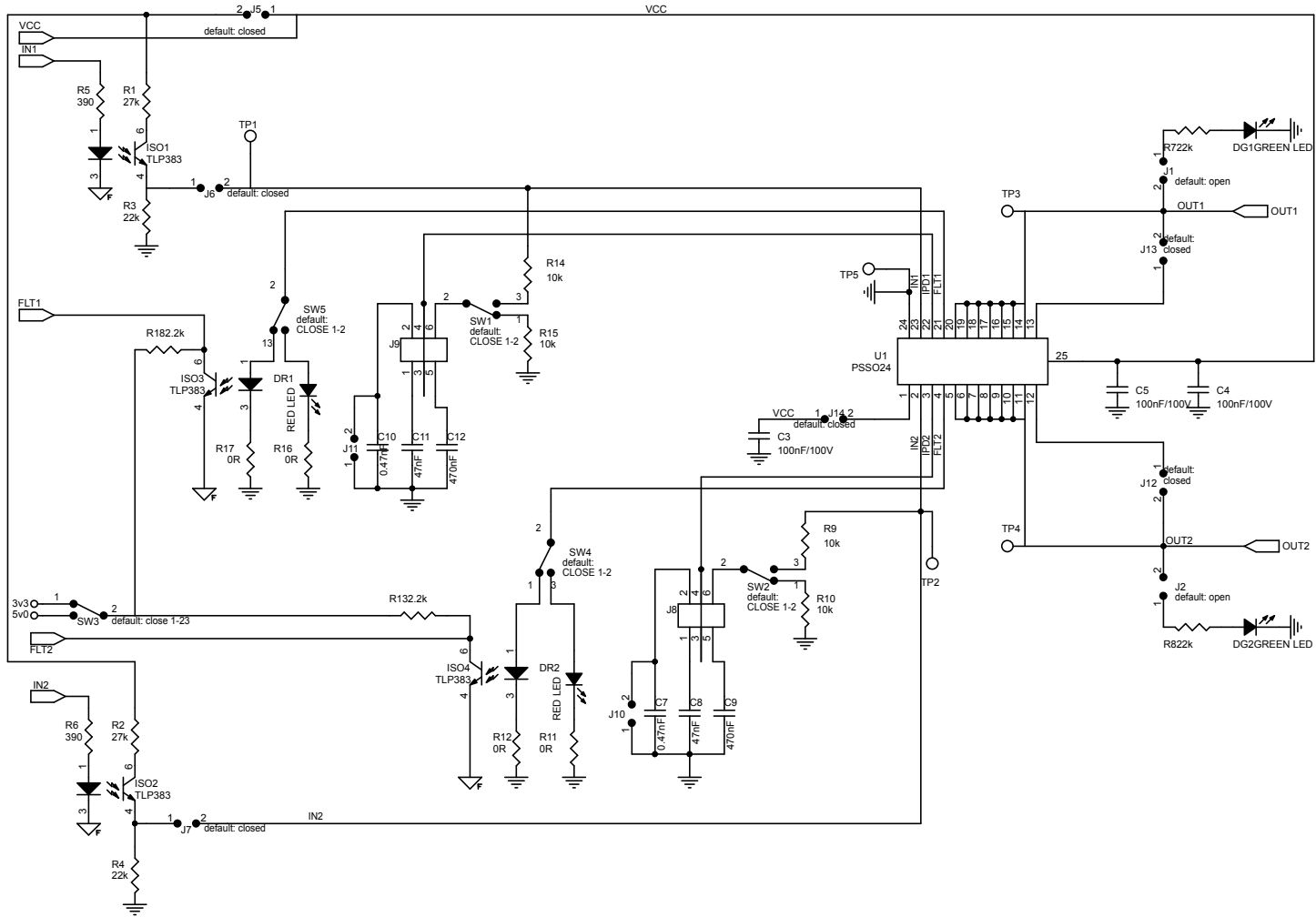
The expansion board can be connected to either a [NUCLEO-F401RE](#) or [NUCLEO-G431RB](#) development board.

It is also possible to evaluate a system composed by up to four stacked [X-NUCLEO-OUT04A1](#) expansion boards.

As an example, a system with four [X-NUCLEO-OUT04A1](#) expansion boards allows you to evaluate an eight-channel digital output module with 5.7 A (max.) capability each.



Figure 2. X-NUCLEO-OUT04A1 circuit schematic (2 of 2)



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
04-Aug-2021	1	Initial release.

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